- 00:00 Welcome everyone. We have such a crowd that we are still having people filing in and getting tickets, but I think in the interest of time. We're going to go ahead and start with introductions. I think by the time we get to the main event uh. Most people will be in and have found their seats. And as people come in there are plenty of seats down here. Very. Uh you know very close to the stage. So uh feel free to use these seats as well. So what a great day. What a beautiful day outside. I'm glad that all of you are here uh in Baker Hall with us uh for this really special event.Welcome to Lehigh College of Business Donald M Gruhn Class of '49. Distinguished Finance Speaker Series. I'm Nathan Urban, Provost and Senior Vice President for Academic Affairs. On behalf of President Joseph Helble and Lehigh Business, it is my pleasure to welcome trustees, faculty, staff, students and members of the community to today's uh chat. And a special welcome to our speaker, Dan Pietrzak, a partner at the global investment firm KKR as well as a class of 1997 accounting alumnus. The College of Business is pleased to bring nationally and internationally recognized thought-leaders such as Mr Pietrzak to campus, to address important business topics of the day. Here at Lehigh we pride ourselves on preparing our students for success. And what better preparation than to have students engage with successful industry leaders. Meeting with and having conversations with uh important leaders such as Dan is a true a truly distinctive element of the Lehigh education. And I am really excited and really glad to see so many students who are here today participating in today's uh conversation. And I understand there was a pretty animated conversation earlier today with Dan in a group of students. I'd also like to thank Don and Judy Gruhn who have made this event possible through their philanthropy. Unfortunately, the Gruhn's cannot be with us today in person, but they are watching via live stream. The Gruhn Speaker Series, which was established in 2008, is just one example of the ways in which Lehigh extends the student educational experience well beyond the classroom. And I would say personally that events such as this, events that bring uh important people. Uh sort of accomplished alumni to campus is a really important part of the lifeblood of any college or university. It's critical to the college experience to for students and faculty and staff at an institution to see the success of alums through the work that they've done uh after leaving uh the university. Distinguished alumni such as Don Gruhn from Lehigh's class of '49 find many different avenues to give back to their alma mater. Don's generosity is felt in many ways across campus. From an endowed scholarship fund, his contributions to the financial services and the Martindale Society, to supporting the Zoellner Arts Center and the journalism and athletic departments, he is a true friend of Lehigh. The Gruhn Speaker Series is yet another way in which Don and Judy support Lehigh. We're grateful for this opportunity to welcome yet another thought-leader to campus. So now I would like

to invite Manoj Malhotra, the Kevin and Lisa Clayton Dean of the College of Business to the podium to introduce Dan Pietrzak. Thank you Nathan. Allow me to add my best wishes and gratitude to Dawn and Judy Gruhn. Let's welcome our speaker and our moderator Dan Pietrzak and Nandu Nayar to the stage. Our moderator, professor Nayar joined Lehigh Business in 2001. He holds the Hans Julius Bär Chair in the Perella Department of Finance. He was chair of the department from 2015 until this past summer. Nandu's research is published in top-tier journals and includes the areas of corporate finance, pricing of securities, residual value insurance and structured finance products. Thank you Nandu for taking on the role of moderator.Today Dan Pietrzak is from the class of '97. His wife Mary Ella is also Class of '97. Both are accounting majors and they're parents of a class of 2020 year student, Sophie. Their son William is still in high school. Too early to tell where he's headed but we have hopes and expectations. They're all here today thanks for joining us. Dan is partner and global head of private credit at KKR, a global investment company that manages multiple alternative asset classes, including private equity energy infrastructure, real estate credit, and through it strategic partners hedge funds. Prior to joining KKR, Dan was a managing director and co-head of Deutsche Bank's structured finance business across the Americas and Europe. He started his career at Pricewaterhouse in New York. He holds an MBA in finance from Wharton, but it all started with his BS in accounting right here at Lehigh University. Dan served on the college's Dean's Advisory Council of alumni and is a member of the advisory board of the Lehigh chapter of the Scholars of Finance. I have been a beneficiary of his vice counsel in the brief three months that I've been here as the dean of Lehigh College of Business. He also serves on the board of directors of first the Metropolitan New York. That's a nonprofit that enables kids to build the strength of character through first life skills program delivered by certified PGA coaches. The program teaches and applies lifelong lessons to the game of golf. Incidentally he was on the golf team at Lehigh on a golf scholarship, as well. I'm happy to see that Dan on Lehigh's golf team prepared him for doing good in the world. Dan suggested today's topic "Financial Market Evolution Post the Global Financial Crisis". We are going to tackle how the 2008 financial crisis has shaped global markets. Many of our students were still young children at that time. We will explore shifts in the regulation landscape, the rise of private credit , and the increasing role of alternative investments. These are changes that continue to influence strategies and opportunities in today's financial markets. Dan will also address what the future holds for investors, institutions and other stakeholders.As we go through this fireside chat for about 45 minutes I will come back and take some questions from the audience to be directed to both uh Nandu and Dan Pietrzak. Now I'm pleased to

present to you Dan Pietrzak and Nandu Nayar. OK. That means I have to speak. Good afternoon everyone and welcome to the Gruhn Lecture. Um A few notes to preface uh the conversation today. Don Gruhn I've known him for a long time and you know he put this together. He donated money for this so that the students can benefit from the insights that distinguished alumni such as Dan can provide. Something that we cannot provide in our normal curriculum right. So uh I know Dan for some time. Now um and Dan has been very helpful in several dimensions including my own research because he's provided very useful insights as well. So a note to some of my professor colleagues I know some of you out there, connecting with alumni helps your research right. So moving right along I think our students are very fortunate to have such distinguished people like Dan come and talk to us. And so let's talk about tonight's topic. But, before we do that Dan, can you give us a little bit of background on yourself and your educational journey? Sure no happy to and uh it's wonderful to be back here. I'd like to you know start by Don and Jud Gruhn, I think this events like this are are wonderful. Um I had the benefit today of being in one of your classes. I had the benefit today of going to to lunch with you know. 15. You know some combination of seniors and grad students. And I think the alumni are very rewarded by coming back to campus and sort of spending time here. But again thank you for having me. I think we might have said the word distinguished a few too many times um. But I but I appreciate it.You know I think uh you know if you think about my journey um. You know I grew up in New Jersey a town called Delran. Um In a lot of ways was probably lucky to get to Lehigh right. First person in my family to ever go to college. Uh So you know I think through good fortune of good friends kind of guided me here and probably got me through. Um. But it was a you know a phenomenal experience here. Uh As stated I majored in accounting kind of minored in political science. Um You know education was important, you know I wanted to get an MBA. Uh I didn't do it the traditional way uh. But I did an MBA for Executives Program at Wharton uh and I graduated in 2005. Um you I think education. Nobody can kind of take that away from you. It's it's the foundations of kind of all you do. Uh. But in a lot of ways Lehigh has been a lot more to me than just the education right. As noted um you know my wife went here class of '97 um. My daughter is a freshman here. Uh Most of our kind of lifelong friends have been from our graduating class right. I think that's what makes this place special. Okay so you were here in accounting so can you now talk to us if you can, what drew you to finance and how you navigated from a career based in accounting to high finance at KKR? What was that transition like and how did you manage that? Well you in a lot of ways um. I think the major in accounting was probably a little bit tactical right. You know I like the major was different then. It was a four-year program. I think you need to go five years, now that

was kind of a big major here in the 90's. That was the place where if you had the right GPA you got a job one of those big six firms. Um. And it was a great training ground. I mean honestly these accounting firms provide experiences to young people that you know just really either don't exist, or they probably let 24 year. Olds do things that 24 year olds probably shouldn't be able to do. But you know a real good. I think training you know finance always interested me, numbers always interested me, especially sitting in New York City. I'm you know I kind of felt that sort of draw. You know I got lucky. Uh we talked about at lunch today how networking matters right. I got lucky. I made my way into uh investment banking and and finance at CIBC World Markets. This was kind of the late late 90's. At that time you know the bank was run by really former ex senior management from Drexel. We all know about Drexel. You know bad probably ending but a great kind of story. Along the way uh it was a place that allowed you know that younger generation to step up, to succeed, to kind of do more. Um You know ultimately I moved on from there. Um I had a stop at at at uh SOC GEN, you know made my way to Deutsche which you know Deutsche Bank was probably my formidable years. Um You know started at Deutsche Bank in 2006. New York City. Okay. Uh so my first uh you know 18 months at Deutsche Bank. We're in New York City. Um I moved to London in December of 07.Which we're going to touch on this today. Was the we'll call it the start of the financial crisis. We'll get to that. Uh You know really moved over with a view that there was money to be made on kind of the distressed market in the US. We were capitalizing on that. Nobody in the world would have thought it got as bad as it did right. Um, But the Deutsche experience I mean it was. It was a risk to the institution. You know Deutsche Bank has had some challenges, but it was an excellent Institution for my let's call. It governance around risk-taking. Um Being smart about you know financial markets, and it provided a good segue to KKR. And you spent some time trading loans? Bonds? What did you do at Deutsche Bank. Specifically? Yeah so I ran um at the end. I essentially ran the credit business right. But they actually took out at that time sort of traded loans and traded bonds. I think where you know the market evolution was going, which goes a little bit to our conversation. Today, is banks were trying to create as large of kind of flow trading businesses as possible. That was the capital efficient models. Where the Deutsche business was interesting is they were very prepared to deploy the bank's capital. Um And do that in a way that you know capitalized on the market opportunities right. So we were early in buying assets from banks, and we're going to talk about the state of the banking system. You know that this was not just a US problem though right. The European banking system was arguably more challenged. You know in 10, 11, 12, you had this concept called the pigs which was Portugal, Ireland and Italy uh Greece, Spain. Like you were talking not about just defaults, you were

talking about sovereign defaults, you were talking about redenomination risk. So you know the Deutsche um sort of jobs, we bought a lot of assets from these banks right. But that was foundation one. Uh. We set up a lot of businesses there that you would call private credit today.

- 15:27 So then you move from that European mindset into KKR. So you're at KKR now. Can you share a bit about KKR? What KKR does? What the spaces it plays in, as well as what your role specifically in KKR is? Sure.You know so the firm itself uh founded in 1976. So let's call that a pioneer of private equity. Um You know Henry and George have really done something special in terms of the firm and the culture they've created. Uh That said, it was a private equity-only firm for really an extended period of time right. The credit business was the second business. We started that in 2004. We're having our 20th-year anniversary kind of now. And suddenly there was this brain wave to move into something else. Yeah you know I think it was driven off a couple things. I mean there's a a classic story that goes around the office that we share with our investors all the time. You know they were out talking to companies on the other side of the dot com bubble. If you there was a lot of volatility in the markets and and a really bad recession kind of 2002. 2003. They would go to meetings. Those companies would want, or those CEO's would want capital, but the company wasn't for sale. And the moment they said the company wasn't for sale. The meeting was over right. So they need to find sort of other forms of capital. So the credit business was the start of that. You know I think the that was even before the financial crisis right. But I think the financial crisis accelerated that, and accelerated that you know, really to where we are today right. The firm has North of $ 500 billion dollar of assets under management.Um Private equity is not the biggest investing vertical, but it's one of five. The credit business is actually the largest investing vertical. Yeah so private equity, uh the credit business, um let's call it $230 odd billion of AUM in total, um infrastructure, real estate and then a big insurance effort. Yep we we bought an insurance company called Global Atlantic in 2021. Um I would talk probably frame that, I'm sure we'll get to it later, as another kind of you know change on the other side of the financial crisis. You know in terms of my role, so I run the private credit business. Um So the private credit business at KKR is $100 billion of AUM. You know, I would say, we do two things if you put it kind of simply. You know we lend money to companies that's number one right. These could either be private equity owned businesses, uh or they could be family-owned businesses, but they're generally larger companies right. The smallest company we probably lend to is you know $25 million of earnings, you know all the way up to probably $250 million of earnings. But you know we're out there you know.Originating those deals ourselves, we're structuring those deals ourselves, uh we're not buying from the banks,

we're not buying off, sort of a screen. That's, let's call it, half of the business. Uh The other half of the business we call asset based finance. So this is, I'm going to call financing the real world economy right. People in this room either have or will have auto loans, auto leases, student loans. You know we probably, you know own a couple hundred aircraft that are on lease. Um You know, so a large mix of financial and hard assets. But again, really financing that real world economy, and you know that's probably been a business that's been born out of the financial crisis right. Because everything that we're really doing in that space is stuff the banks would have done prior.Um sure uh you, so I would probably put my day-to-day in in a handful of buckets right. Obviously the the team now is 125 people, so it's not a small business to manage. Um At $100 billion of AUM, there's not a day that goes by where you're not involved in some form of transaction right, so you got to run the business. Um uh Number two, you know I spend a lot of time on the investment side right. I think if we want to be honest, I'm not out there kind of hunting individual deals anymore. Um. But you know, we spend a lot of time. In the underwriting process, our IC process is very intense, um and then along that lines, I'm the main PM for most of those pools of capital. Uh And then I do spend a fair amount of time, which I know is an area kind of near and dear. To your heart, we do have a publicly traded BDC, which stands for business development company right. That was really the start of some of these private investment vehicles that would provide money to small and medium-sized businesses. Uh. That entity trades on the New York Stock Exchange. Um You know, that entity is is probably higher maintenance than most things we have because it is a publicly traded name. Um You know, but I think you know, with a team of 125 people, you know, I view this very much as a team sport, and I think we're lucky that we've got excellent sort of people on the team.

- 20:13 Yeah you know I would put into probably two buckets right. I think the different jobs that I had. Before Deutsche were broad, they were dynamic. Um I probably, in a lot of ways, was biting off more than I could chew, kind of along the way. But it was always giving me stretch assignments. I think for any of the students out there, I think stretch assignments in your career are are kind of excellent ideas. Um I would say Deutsche Bank would have been the real training ground right. I you know we started a direct lending business there in 2009 before many direct lending managers were set up. We were buying more assets than the likes of the US buy side firms during that financial crisis and sort of that five years after. You know I think the Deutsche business. At the end of the day was probably 500 people right.It was a 65 billion Euro risk book. You know it made a couple billion Euros, of kind of, annual sort of P&L. um And I think there are lessons learned from running larger sized businesses, running larger sized teams. You know we kind of joke a lot at work. Like, we're not

curing cancer right, we're we're finding a way to do good deals that don't lose money. Yeah um. But if you do that, you know, you need to do that in in a way that these aren't kind of maybe the the most interesting words. But you need investment process you need governance. You need kind of um a way to ensure you're not making mistakes.So being in Deutsche at the cusp of the great financial crisis you saw a lot of stuff going on right. So the great financial crisis I think is intertwined into your career progression. You never waste a good crisis, that's the lesson here. So I think that's a useful segue, a nice segue into tonight's discussion right. Financial Market Evolution Post the Global Financial Crisis. So let's set the stage here, and it's a pretty scary stage right. So the markets were in turmoil. At that time, many financial institutions had failed – West turns, Merrill Lynch, Lehman Brothers, and they all happened in a short period of time, within a couple of weeks. And everybody was waiting for the next shoe to drop right. And then we saw $180 billion dollar bailout of AIG. That's a huge amount of money bailing out a particular company. So people were just wondering what's going to happen next. People were scared right, and so, in your opinion, what do you think were the root causes of this great financial crisis, this scary event, and what what vulnerabilities were exposed at that time. Yeah well, I think there's a bunch of vulnerabilities exposed right.I do think you probably have to take a step back. Um You know, there was a major law enacted post depression called Glass-Steagall that sort of separated the commercial banks from the investment banks. Uh You could argue in a modern day finance that didn't make sense anymore, that rule was essentially unwound, that let a lot of mergers happen, but that let these, uh, sort of investment banks be larger. When you become larger you arguably have more systemic risk to the global economy right. So that's one sort of piece of the backdrop. Taken away. They could be merged into one right. Um You did have an onslaught of what I would say complex financial products right. Credit default swaps, ABS, CDOs. Yeah so we so you know. Historically. The the environment was very much a a kind of cash environment right. If you lent money to a company you'd actually give them sort of cash. But then to manage risk I could sell you a derivative, that would say if my loan went bad. You would have to pay me back right. So you're just creating more and more sort of financial leverage in the system right. The ABS CDOs probably go to the heart of your question of, in my opinion, what caused it right.Because if you do think about, um you know, most recessions in the United States are caused by major bouts of unemployment or major kind of asset bubbles right. You can think about '91, you can think about the Russia default '98, you can think about the Internet bubble in sort of '01. But you're sitting in 2007, there was a massive housing bubble right, and that housing bubble was 100% fueled by the subprime mortgage market right. Because it was super easy to go get

yourself a mortgage loan right. You and I were talking earlier. Today, you know the the first apartment we bought. In New York City, I literally called some mortgage broker, I gave them like three pieces of information, the only comment other than, they said approved, was you should borrow more money and buy a bigger apartment. There was no income verification, there was none of these things, and now if you get a mortgage today the stack of paperwork's kind of this high right. So there was a lot of speculation, there was a lot of um kind of push on that subprime mortgage market. You know, you go kind of a step. Further than that, um is those subprime mortgages were being bought by the Wall Street firms. Those Wall Street firms would immediately securitize those.There was no alignment of interest there right. So you would buy the loans, you would look to securitize it, you look to make money, you had no skin in the game right. That was kind of a real problem. And then you had this product called ABS CDO. So CDO is a collateralized debt obligation. People should know what the ABS market is, but that's the securitization market. Um They were packaging together portfolios of these residential mortgage-backed securities and creating more financial products. So instead of that one loan being, you know, owned by a bank, now that loan is spread out and it's levered probably 50 times right. So just a tremendous amount of leverage in the system on the financial product side, at the same time you know the banks themselves were probably levered 25 times on average. Yeah I'm not sure enabling is the right word right, I think you had a fairly benign economic environment right. I think the country had a view that housing was the one asset class that never went down right. You know most people on the credit side believe that people would never not pay their mortgage. I think what you actually saw during the financial crisis is people were paying their auto loan before their mortgage right, because they they needed to get to work, but you can default on your house and in the United States, uh mortgage is effectively non-recourse debt right, so they can't chase you kind of thereafter. So I'm not sure it was enabling as much it was the system was getting more sophisticated, the capital markets was open for it, um you know that ABS CDO product probably uh really created, um you know multiple times, you know, tens of multiple times of leverage in the system which was kind of a driver. You know for those of you who um, you kind of want to dig into that a little bit in a more fun environment, go home and watch The Big Short right. It's a movie, it's actually fairly enjoyable, it gives a pretty good summary, go read the book, kind of Too Big to Fail, but this is going to be a history event right. Because I think you have the, I think you have the depression and then you have the financial crisis right. They were you know the financial crisis ended very quickly because the governments injected a tremendous amount of money directly into the banks in the United States, and they removed that fear.

- 27:50 So, there in there is a vulnerability here right, there's a vulnerability. So what has been done to address those risks specifically? What risks exist and how do you mitigate those risks to prevent another GFC? Yeah well, number one, um. I think the regulatory environment has changed dramatically, and I would argue. It's it's kind of done its job right. You had um you had Dodd Frank, which was a major piece of legislation that came out that was intended to you know restore financial market stability. Uh You had the Volcker Rule come into effect, uh which really didn't allow banks to play in prop businesses right. So you took risk out of the banking system. Um You know, that I think, had a pretty meaningful impact. You had concepts like risk retention come into play. If you remember what I said before, banks could buy the loans and sell them, they can't do that anymore. The originator of the assets needs to have skin in the game. You know, alignment of interest clearly matters right. If you own the bottom tranche of a deal you're going to be. Pretty focused on how the rest of the deal is going to perform. So you, I think that regulatory environment changes, while I think they were hard for banks, and I was at a bank. While they were all going on, you know I think they did. Uh. In many ways, you know stabilize and reduce risk in the system. You know I think if you just look at some of the numbers today, if banks used to be levered 20 plus times, they're probably levered you know 10 times today right. Banks used to talk about wanting to make 20 plus percent ROE's, and now banks are talking about making more rational kind of you know lower double digit sort of ROE's. I think the business models of most banks due to consolidation are broader right. You know you look at the likes of a JP Morgan who has like a wonderful consumer finance business, in addition to it's it's an extremely well-run bank. You've got big asset management divisions to some of these banks. So I think they've moved into kind of more stabilized business models. I think the regulatory environment, while hard, remove some of those excesses, or some of those alignment of interest challenges that existed. Yeah. But I think the problem with regulation is finding the sweet spot right, that's the Goldilocks problem on regulation and do you think we are there yet, or do you think we over regulated, or have we under regulated? What in your, what do you think? You know I think there's probably always refinements, um you know. I think if you do follow the news flow lately, you know the FED had a fairly aggressive additional capital requirements that was coming down the the pike for banks. I think the banks were unified and it was too severe, I think the FED realized, I think a lot of that's kind of been unwound. Um But I think they have created an environment today where the overall financial system is more stable and more sound than it was in the past. Um and I think that they've kind of done their job. The way they wanted.You know intended to do it, and I think it's kind of worked. And then, but then in recent times we've seen instances like

Silicon Valley Bank going bust and First Republic. And so, do you think regulation has been enough in on that dimension? What what do you think? Fairly recently. First Republic failed on the other side. You, I do think one of the challenges that banks do have. These days is a mismatch between their assets and their liabilities. No, that's just a fact of the way banks are run right. That the banks are um generally taking in deposits. That money can be redeemed at any sort of moment, they're making loans that are longer, I think there is a lot of regulation around, you know, liquidity tests, and how they're sort of managing that. But I do think the environment is the environment is different today right. 25 years ago if you wanted to go get your money out of a bank, you'd kind of drive in the bank, you'd have to fill out some paperwork, you take the money out, you have to drive to another bank. The friction cost of the time to do that was very high. If you think about Silicon Valley Bank, somebody, who I'm going to blank on the name, sent a tweet that they were worried about the financial health of Silicon Valley Bank – $40 billion left in four hours right, so this asset liability mismatch I think is a challenge, and I think it's a challenge for how they kind of managed through that. Um You know First Republic was probably more of a story of a good bank in a bad neighborhood right. And you know, the other thing that was we'll call it a big C change, you had a gigantic interest rate move right. And for banks, First Republic would have been a big story of this in SVB too. They were making mortgage loans at 2%. All of a sudden the short terms at five. Those were big money losing kind of loans right. Um So I think it's, I think that's a hard environment, but I think what you have seen is consolidation right. Before the financial crisis there was 8,000 banks. In the United States, there's 4,000 today right. I think there'll be 2,000 in five or seven years, and I don't think that's bank failures, I think that's consolidation to be more stable on the asset liability mismatch point, to get, you know, redundancies out of the system, to create a higher return on equity for their shareholders. Well, in terms of the market's response to these new playing field, these new rules that have come out, which parts of the market and the businesses have grown, and why do you think? I think one commen misnomer is that the banks have shrunk right. Uh The banks have actually grown fairly meaningfully. During this time period, the whole marketplace has grown meaningfully. I think you can argue just the bank's share has changed.Um If you know, put your finger on that a little bit, that's driven. I think a lot by, you know probably the monetary policy, the Fed had how cheap money was, you've got a bunch of growth in the system. Um. But the system has grown. You know, I think what you have seen though, is more and more capital um moving, you know, away from the banking system into either firms like ours, or the insurance space, where just the end investors are looking for uh outsized returns, and willing to get paid for that kind of illiquidity

premium. Okay right you think about the business that we're in, you know, most of our investors are large institutional uh investors, their state pension plans. There sovereign wealth funds, they are not liquidity concerned, so they are willing to put their money into um you know, more longer-term, tied up vehicles from a liquidity perspective and earn those excess returns. Okay. So we've seen this new private credit kind of firms come up, what we call alternate investment firms right. In the last five to seven years the growth has been considerable, these ALTS, ALTS for alternative firms right they, function outside the traditional banking system, totally outside. Have they, how have they altered the credit landscape okay. Meaning the way borrowers borrow money, and also why didn't they have a meaningful presence before this? Why has it been a fairly recent phenomenon? Sure. Well, I think that ALT term, it has turned into kind of its own sector right.Most of these large firms, KKR included, are now publicly traded right. So um, while I think you are correct in saying it has moved out, outside of the banking system, these firms are probably more transparent today because they're publicly traded than they have been before right. And most of these firms have been on this journey about not being private equity only anymore, but being involved in sort of other asset classes. You know, I think though if you if you take a step back on this, you know go back to what I said about Dodd Frank right. Dodd Frank didn't just put additional regulations on the banks, it also made it, I would say a little bit more difficult for companies to either go public, or want to be public in terms of financial disclosure. You know there was actually something popped up on my Bloomberg feed. Today, that you know, Jamie Diamond was out there saying they need to make it easier for companies to go public in the US. But that was a ramification of this Dodd Frank change. What that did mean, because capital's always going to find the you know, the inconsistencies or where the challenge markets are. More and more money was raised from middle market private equity. So this isn't the likes of KKR and the Blackstones, this is same business private equity, but buying smaller companies. Think about companies that might have, you know, 10, 20, 30, 40, $50 million of earnings. Those numbers are bigger today but that's probably where it started. You know, those those companies that they were buying needed to get financing right, so now you have a void in the market, because I don't think the banks ever wanted to provide that financing. Like the big banks have have been in the moving business for a long time. They, want to underwrite risk and distribute it right. They're not in the storage business. They don't want to hold it. Um. So you know, capital was raised to address that right, and you're specifically talking about the direct lending market. Now, okay right, capital was addressed to do that.And now you we're in a scenario where you know, the old asset allocation model that I'm sure you've taught in classes. Here, if people taken, it's been that 60/40 split right.

You put 60% of your money. In public equities, you put 60% of your money in public fixed income, net net you're always going to kind of win because you're sort of diversified. You know, I think that model, with the big rate move of the last couple years, proved to maybe not work, but I think that model has now gotten much more sophisticated, where people are getting more granular, looking for that. Additional yield, they were probably hunting for that additional yield. When rates were low, so now all of a sudden, people started lending, or providing capital to firms like ours to be in the direct lending business. So you now have a supply of deal flow right. Where you know, that these companies need sort of capital, and now you have lenders who can provide it. And now you've gone on this little bit of a cycle right, as we raised more money you know, we can lend to larger companies. I think you were in an environment. Probably pre COVID, where companies would get to a certain size, they would leave the direct lending market and they would go to the syndicated loan market. Um I think that dynamics changed right. I think during COVID. A lot of companies would have been, you know, top of their game in terms of revenue and all of a sudden revenue went to zero. And then they would have to go to their lenders, they'd have to ask for amendments or waivers or other things of that nature. They would realize that because the banks in the moving business, they have 75 lenders, you know the CLO's .so collateralized loan obligations, are big players in the loan market right, so they had to go talk to all these people. So it used to be that people would access us because they wanted certainty of execution, but now I think they also want to know their lender. For sure, And you know, I do think for those of you who follow kind of you know, the news flow out.There, I do think private credit has gotten a lot of attraction in the past couple of years. You know honestly, we tell people we think that attraction in some ways has been too much right, this is not a new asset class in my opinion right. GE, CIT, others were lending money. You know a long time ago. Um You know, arguably the loans banks made a long time ago, where they just kept them on their balance. Sheet, you could argue were private credit. BDCs existed you know, well before the financial crisis. It just has scale now. Yeah, I mean, I would break it down like this to start. So most people, when they say the word private credit, they're really only talking about direct lending right. And we've been on this you know mission for some time. Now, to educate people to be, it's broader than that. We have a broader business, it's much broader than just that, but if you go into kind of um building blocks, the direct lending business we think is about 1 and a half to uh $2 trillion right . Significant. Now, the syndicated loan market and the high yield bond market are kind of similar sizes right, but what that's mean is. This business has become on equal footing to those two other markets right, and I think that that's important. Now when you go beyond that though right, we talk about the asset-based finance

market, which that's the other part of our business, as roughly $6 trillion today right going to you know 7, 8, 9 trillion on the forward. You know there's numbers out there that we would generally agree with at the overall private credit market, but again that's a pretty broad term, you know could be upwards of you know, $30-40 trillion right. So this is a big part of the economy um. It's not going away. And I think the way the business has been formed. Of having these long-term institutional dollars in there, that just can't pick up and redeem, um again go back to this asset. Liability. Mismatch has been a key, a key kind of part of its success and will be. Okay so now, so in some sense people get the feeling that private credit, this is unregulated. You know front, and so do you think private credit, because it's unregulated. It's like the Wild West almost? Do you think it can cause or it can spice up, spill over risk into the credit markets as a whole, and you know, will there be more regulation? Will there be more oversight on private credit and ultimately who's going to pay for this? We know Mexico is not going to pay for it right so.

- 41:56 We, we'll kind of start there. Um You know, it is a real topic, it's a topic that's out there. I think it's I think it's incumbent on the industry to kind of educate its various sort of stakeholders. Um I do think that education start from the beginning of saying this isn't really new right. Everything that we've done has been sort of done before, it is being done at a different scale and we sort of acknowledge that right. I think you have you look at the leaders of these um you know businesses. At these various firms, they've been doing this for a long time. Most if not all of them have worked at a bank at one time or another, so there's I think sort of real training sort of attached to that. I think the industry has done a good job but probably can do a better job, on what I will call sort of best practices. You know, we are pretty focused on disclosure. If you go to our publicly traded BDC, we literally list out every position that we own. I know that's pretty detailed. You go to reports. We're giving our institutional investors, there's a case study on every deal. We're doing right, but is that enough or is it consistent enough. You know most players, including ourselves use third- party valuation providers to mark the portfolio right, so the deal team is not the one kind of only providing the mark, the deal team is working with these independent providers. That gives good comfort to our investors um as they know sort of transparency there. So I think we've got a lot of good and best practices, but I think we have to take it to the next level.I think we as an industry are talking about that, there are trade groups set up. Yeah I think it's educating the various stakeholders right, and you know I think the other two points that are important, um is one, the industry is set up with this long duration sort of capital right. You think about why all of the the regulation does center around the banks, because you do have deposits, those deposits are you know government guaranteed. Um You know, you have to have kind of rules

in place to have some safeguards. Around that right, I think that's a pretty rational sort of piece of the puzzle. Our money is all coming from these institutional folks, even if it's wealth product, you know there's arguably very limited redemptions that are available now. Uh You look at the leverage that's in these vehicles, I mean our BDC is levered 1.1 times, our funds are levered kind of one times max right. So I think, yeah so you know, in some ways, and I'm biased, so keep that in mind right, but in some ways I think all the evolution of the market that has happened, and how this private credit industry has grown, has actually created a more stable environment. Like we want to be involved in the market when the market has significant volatility, that's a time we're supposed to sort of outperform right. So we're kind of an all- weather lender. Um and I think that you know, enables credit to be available to companies and to borrowers even in times of of meaningful market distress.Great, so now I want to move on to a topic that has more importance for a lot of the the college here um. The College of Business has an annual Year of Learning topic and this year the Year of Learning topic is the Impact of AI, artificial intelligence. How do you think artificial intelligence is going to affect your industry, and in particular, how will it affect KKR, or is that going to be a top secret? So I don't think top secret. Um You know, AI is uh probably without a doubt, going to be some of the most impactful technology in any of our lifetimes. Um. And that's with having lived through kind of all the changes of the internet sort of etc. I do think the actual impacts of AI is in its early days right. I think it's a lot of it's still in the lab, I think the amount of of things that are actually being done.At. It are are probably, I'm going to not use this word for the long-term effects, but where I think it is today, probably overhyped versus the current kind of use cases, or maybe where the some of the valuations on these names are. But undoubtedly I think it's going to have significant changes in the world right. For us directly you know we are trying to use it today to be more efficient as we think about research, about companies, about specific sectors. Uh We are using it to make our LP or client experiences uh better. I think the biggest impact in financial services. Today is actually call centers right, which is not kind of our space, but if someone had a problem with their credit card or they have a problem with one of their um sort of mortgage payments, that is a great tool, I think that's going to make that sort of much more efficient make that a much better sort of process yeah. I think the real impact today, is this is the amount of money going into.The data center space is significant right, it's turned into a small asset class to kind of a very talked about very kind of center of the fairway, some of these things cost a billion dollars right now. Right, so you think about that, and this is being fueled by AI, and where it's going, and then the thing that nobody is probably spending enough time on, is the power needs that relate to this right. And you know, I had the benefit of being at this

Morgan Stanley event last night on digital infrastructure, and their team was going through various things, I'll probably get some of this wrong, so keep but you know Microsoft has talked about you know building this gigantic um sort of data center, I think it's it might be you know sort of 10 times the size of the normal one. Um Just to power that at it's just regular computing power, so no backup, no redundancy, would take the power of uh all the power being used in New York City and Chicago right. The regular data center is taking the power of sort of Houston right. So that doesn't mean it can't be solved right.We have more natural gas in this country than we know what to do with, we're exporting it. You know solar has gotten a lot of of real tailwinds attached to it. Um But there is a gigantic capital need to sort of change. This, I mean Microsoft you know made the headlines. The other day, they're actually going to bring back on a nuclear power plant that's been decommissioned for you know 40 plus years. So you know I think you're I think this is the long game. Not the short game, I think the you're getting the data centers being built, you're getting um a significant need for computing power which is kind of driving that, everything's up in the cloud. The algorithm are getting more complex, but you got to find a way to power them. And a lot of data centers need redundant power systems right, in case the main power system breaks down you need more power, so we're talking double the amount of power that you just talked about. And I also think there's there's other things, I mean, you know, we've looked at deals where you know. We can take old kind of coal mines that are sort of being decommissioned, they're already attached to the grid, that's like the big sort of point of the puzzle here. Could you put solar fields there, could you get natural gas there, um. But that's a longer-term discussion that to be honest. I think is probably still in its early days.

- 49:30 Okay before we move to the Q&A section, I think everybody wants to go move to the Q&A section, I just want to bring the discussion back to our Lehigh University, and an initiative that you and the members of what I affectionately call the Lehigh Credit Market Mafia - no disrespect there right okay. So this crew including yourself, Paul Knollmeyer, Rob Camacho and Greg Geiling. And then you brought on Chris Scott, Charlie Bustin and John Abramson. You've created this finance mentorship program for Lehigh. I think it's an amazing program, it's, I've seen firsthand how much this benefits our students as well as alumni at different stages of their professional growth. Can you please share a little bit about that if you don't mind, in the remaining few minutes that we have left. Sure I mean an interesting starting point is the four of us who started that thing didn't know each other from. Lehigh right, we all graduated at different times, we all happened to be in the private credit business. Um Rob was at Goldman. He was financing HPS, I knew him from when I was at DB. He was financing us at KKR. Greg's at sort of Bayview now, but he

was at Blackstone before. I think the common thread was, well number one, I think Lehigh connections matter, and I think you have a very supportive and very available alumni base, who kind of wants to help. Uh I think we saw a particular sort of challenge that, you know, the Lehigh business school has done a wonderful job on sort of so many things, but we weren't seeing enough.Kids get finance jobs, kind of early. And you know, I think there's some fairly legitimate kind of reasons. For that, you and I have talked about that at length over times. We weren't getting the the firms on campus recruiting. Recruiting starts super early now. I think you you interview for internships for finance at the beginning of your sophomore year. How could you get the students prepared. You know, so we we wanted to get involved to kind of help that right. And I think we found it, you know I think there's more than being alumni than just kind of you know, writing the check. Um. But you know, no difference than the speaker series, actually doing things that I think can kind of impact students. Uh So we were happy to do that, we took it. Uh upon ourselves um to start mentoring individuals who, let's call it three 10 years out of college right. We wanted to help folks who were just really in and around New York. Probably by definition, we knew. We were probably too far out of touch ourselves, mentor individuals, kind of in college. But the quid pro quo was, if you wanted to be part of the mentorship program. As the young alumni, you need to mentor folks on campus. I call a pyramid okay right, and if if there's now you know seven of us, if we can each do three or four kids, and they can do you know you know, four or five sort of three or four young alumni, they can do three or four sort of kids. In college, you can get up to like a 100 people. Uh And I think it's been rewarding for us, I think it's been you know hopefully impactful for the students, you know some of my you know mentees have called me. As they made job changes right, we've talked about you know next steps, we've talked about what they wanted to do. Uh It's been, I think, it's been a good program, I think it can do better, but I think we got a lot of support behind it, not just from the alumni, but from the university itself.So it's a system where the senior folks mentor the junior analysts and associates, and the junior analyst and associates then have to mentor Lehigh students, who in currently are in. Excellent. That sounds like an amazing program. Just a great example of how much our loyal alumni participate and contribute to the well beinging of the future generations of Lehigh students, and I think you know the Lehigh alums really step up, so I really encourage students who are pursuing a career in finance to take advantage of this finance mentorship program. And it all came about because of four people decided, one day, to draw some things on a paper napkin from what I'm told. Okay, and that sort of ends the our moderated component of the Gruhn Lecture. And now, I'd like to hand it back to Dean Malhotra to oversee the Q&A session. Um We will take now

questions from the audience. Uh You can see that there are two microphones on either side, so please step up to the uh microphone, ask your question, uh keep it brief as much as you can. So let's go with you sir. Hello.Um I'm Harris Rosenthal, I'm a sophomore here. I want to first thank you guys for being here and for your time. Uh Kind of two-part question. Number one, can you please talk about the relationship between Global Atlantic and KKR's uh private credit business and how they benefit each other. And then the second part, is what's the competitive advantage of KKR's private credit origination capabilities, and how does it compare to like an Apollo? Thank you. If you do take a step back, you know we we did enter into the initial acquisition with Global Atlantic. In um, we actually announced it during COVID. It closed in February of '21. Uh It has been strategic for us, we've actually since acquired uh 100% of the business. Um There has been a theme out there about, uh partnerships between insurance companies and alternative asset managers, to kind of drive, you know, returns, allow these people to do the best that they can from a policy holder perspective. Uh It has been very impactful for us right. It has it has allowed our private credit business to scale. More meaningfully, it has allowed, you know other parts, like our real estate credit business to scale more meaningfully. You know, I think we're proud of what we've done. There, I think it's a great management team, it's a great brand at Global Atlantic. You, I think, you asked about the origination footprint. You know, I think everybody spends a lot of time making sure. Their origination is as broad as possible right.We're covering financial sponsors, we're covering the financial intermediary channels, which is law firms, which is brokers. You know, we even cover the banks, uh we also have people out there covering all the various fin C, almost any angle you can find. Um The one thing that we do talk a lot about is, inside a business like private credit, size and scale matter right. You need the capital to control deals, but you also need the team to be able to find those deals right, hence that's 125 people on our side. Yes thank you. Uh Benjamin Pauls here. Um I have two questions uh for one. Um How's private equity changed with the initiation of Act 40 Funds and ELTA Funds in Europe, and especially in regards to the credit, private credit business? Right. So on the first question, um, I mean. Obviously the historic framework for private equity funds was to raise that in a traditional sort of GP sort of LP structure. Right, that's was the the kind of core of that business for a long time. I think your question is referring to these other sort of means, where other types of investors can get access, you know, to those types of vehicles. I think that's a a big theme for the market, one that I expect continues. I you, and and this is what we talked about a little bit with Nandu, I do think that the real driver for the initial growth that private credit saw, was the growing kind of private equity market that needed financing right. You know we didn't talk about this, but we would estimate there's a

similar amount of dry powder on the private equity side right. Who's kind of waiting to buy companies. If anything, M&A volumes have been at historic lows right. You had this gigantic move in rate, you had really a disagreement about valuations, was there a willing seller, willing buyer. You got a lot of dry powder there, and now you have the capital to finance at the other side. But I think that was the real driver of where, the you know, this direct lending and private credit market grew.Thank you. Um My second question goes towards more of a economic perspective in general, with the growing fear of recession in the US, and most probably upcoming recession in Europe. How do you think the market's going to shift in terms of in investments? Well interesting. I think the market seems very unsensitive to kind of big, you know events, either economically or geopolitically. I mean you do have a pretty dicey situation out there right. You got multiple wars, um you've got a consumer who may potentially be over levered. You know, I do think though, the I think you have to give the FED um a compliment, a a significant compliment right. You had a meaningful move in inflation that you could argue was directly related to the pandemic, I think all the government stimulus probably was not needed, but definitely some stimulus was needed considering what was going on. They aggressively uh increased rates, they did that without you know, tipping the economy over into a recession. I think we've gotten to the point where you know, the big conversation has been hard landing or soft landing. I think we've gotten to the point where most people believe the hard landing is off the table. I think that's correct, but I think people need to be mindful of monitoring risk. I think you now have a question of, you know, is the consumer over levered. You know it is a consumer-driven economy. I think you're correct, Europe is probably weaker. Germany, which used to be the the main economy over there, is kind of struggling from a growth perspective.

- 59:21 So I think it's going to sort of play out. I think the the lowering of rates is going to help right, again, but, I think you have to bifurcate the markets. The equity market's kind of its own game, and then the credit markets, you know, credit markets. Right now are probably as strong as the equity markets, but I think that they usually are the most, are the first ones to to take a step back if they see risk, um sort of presenting itself. Uh Mr Pietrzak I just want to say thank you for coming and speaking with us. Um My question was what do you think the future of the asset back financing and securization market looks like, and how that differs um at a mega fund like KKR compared to a bank? That is an area that I think we're pretty, uh we're pretty focused on in terms of sort of growth. If you do think about you know an asset class like direct lending, we're probably in the middle to sort of later innings of that. I think that market will still grow as deals get bigger, but it's becoming more mature. You know, there has not been a lot of scaled

capital raised in the asset-based finance market.I think we're excited about that. I think we've been doing that since 2016. You know we've been fortunate to have real scale there. You know the question about the insurance company, that's been quite impactful for us there. So I think that trend sort of continues, uh I think that's where probably the big growth of private credit is. You know I think there is you, know these markets do partner together very well though right. Because even though you know, we may be buying certain assets from banks. Because they are capital punitive, you know banks finance us tremendously either against our direct lending funds, or probably most specifically in the asset-based finance market right. So I think I think it goes back to this regulatory point, we're probably sitting at the bottom of the capital structure, they're sitting more at the top of the capital structure. But,if you think about, you know banks being smarter with the balance sheets, if you think about corporates being smarter with their balance sheets, you know wanting to be more asset-liked, you think about technology and driving sort of consumer finance, I mean, this isn't a big market for us. But, you can all get a loan on your phone right now for probably almost anything that's kind of out there. Um I think we're pretty bullish on the growth.I'm a sophomore here, uh I'm Jake, I'm a sophomore here. Um I'm also a part of Scholars of Finance. So first and foremost, thank you for supporting our organization. But uh, as for my question, as a Lehigh student competing against these huge target schools, what do you think the best thing we can do to, if not gain a competitive advantage, at least play at a even playing field with these target schools when it comes to breaking into the industry? Well first, congrats on the Scholars of Finance thing. I think the Lehigh chapters, I heard 75 kids today from, you know, kind of a starting spot of probably zero a handful of years ago. So I think it's a great organization, so congrats for that. Uh You know, I do think, you know for finance. Particularly, you know I do think it. It's going to require a little bit of extra work right, a little bit of extra diligence, using that Lehigh network. Probably being overprepared, um. If you're interviewing at you know, XYZ firm. Find someone who works there right. I'm sure the the Lehigh connections website can help with that. You know LinkedIn can clearly help with that. Um You know, but maybe a little bit more kind of elbow grease versus just kind of coming out of Wharton. You know, that said, I think the overall Lehigh Business School provides you know, an excellent sort of foundation right. I think we've we've seen you know, on on my side, we've got two. Lehigh alumni sort of folks who've joined the last couple years, they've been excellent sort of performers. I think they come well prepared, I think they're kind of well balanced in both the kind of technical you know, sort of skill sets, as well as the social kind of aspects to succeed. You know, your your career, your job is much more than running a model right. You need to work on in internal networking, you need to work on

external networking. So I just think you got to lean in a little bit more, and I think people probably need to understand that these recruiting processes are starting much earlier and I'm not sure there's anything that's going to slow that down. Yeah um I'm Muse, a senior here.Um Again thank you for your support to Scholars of Finance and your time here today. Um so, you mentioned earlier. Today that times of market volatility is when you learn the most. You know, as you reflect on '08 and the more recent COVID crisis, what are like a few key learnings that come to mind? Well undoubtedly you learn the most, right. Because when everything is going up and to the right, like nobody's making mistakes right, and you kind of learn from your mistakes. And you know, I remember sitting on the kind of the trading floors of of Deutsche in London, which you know those trading. Floors were probably two or three times the size of this room and you're just watching the TV and you're watching kind of banks kind of fail. I do think you learn a little bit about, you know history repeats itself in finance, so what were the mistakes made so you don't sort of repeat them. I think there is something to be said about being kind of calm in this time of market volatility. I think the folks who had lived through the financial crisis handled COVID much differently than the folks who didn't. Yeah you know that was a little bit of a different thing because nobody knew you know, really where the end game was going to be. Uh But you're going to have tough times in your career, there's going to be tough markets, I think you're supposed to lean into those right, because I do think, I do think you always have to kind of learn. You know we were talking at lunch with the with the student group, you know. I probably have not been a curious enough learner kind of over time, so I would kind of lean into that, I'd be leaning into things that is not your area of expertise, but you're going to learn from your mistakes, and your your mistakes are going to get exposed during you know, events like the financial crisis. Hi. My name is Tyler and I'm a freshman.Um I was wondering uh based on, you talked about AI briefly in the presentation and I was wondering if you think there's a short-term bubble around its stock or stocks in that kind of area in the field? You know to be honest. I'm probably not smart enough to have like a perfect view. Uh I seems like there is right, because these things are trading at valuation multiples that are at epic proportions. You know that said, you know those probably same conversations were around what's it called ,The Magnificent 7, sort of today over the last sort of 15 years. You know, there's clearly more risk right, but you're getting paid for that sort of risk. You know I think the one thing that might be different today. Versus let's call it the internet bubble of 2000, 2001, 2002 or even kind of some of the VC bubble that we saw you know leading up to kind of the meltdown of '22. A lot of those companies like never made money, and were never going to make money. So it was really hard to justify those valuation multiples on a long-term

perspective. You know I think these AI businesses have the ability to kind of more rapidly kind of go from red to green as it relates to the income statement, um. But I don't think, I think it's speculative right now.Hello, my name is May, I'm a sophomore student here at Lehigh. Um You talked a lot about the significance of the asset liability balance and how that contributed to the downfall of the banks, especially in times when the market is constantly shifting in volatility. How do you approach unrealized gains, especially when you might be considering them as collateral per potential investments? Yeah I think there's a different answer for that depending on probably what type of pool of capital you manage. Um You know, everything in our side, and I this is the one of the benefits for this, you know we clearly care about market to market tremendously. We report uh gains and losses to our investors on an unrealized basis uh at least quarterly. But at the end of the day we're most focused on what's the end result for that investment. You know, I think the one thing we do have to think about. In this business is, it is usually prudent risk management to take some risk off the table if youve made a lot of money right. And that doesn't mean you have to sell it all right, maybe you sell a third, maybe you sell half, but maybe you take your cost basis off the table. You know, so I think that goes into you know, our job inside of private credit is very different than you know private equity or venture capital, and sort of what their goals are. Like ours is about downside protection. You know, we cannot afford kind of big losses in the portfolio, so if you have those winners you have to do it. Where you know, venture capital funds could have a lot of investments that were zeros, but they could have a bunch of investments that could have made 10 plus times their money right.

- 01:08:30 We don't have that luxury. With that, we conclude our event today. Uh But before we do that, thank you all for attending the 2024 Donaldm Gruhn '49 Distinguished Finance Speaker Series. Special thanks to Don and Judy Gruhn, whose continued generosity makes the series possible as we strive to expose the students to thought leadership from around the globe. Thank you to Nandu Nayar for his moderating skills and to Dan Pietrzak for sharing his thoughts and experiences with us here today. Thank you all for joining us.